IB-400/64
2 November 1964

MEMORANDUM FOR: Chief, OSS/PID (NPIC)

FROM   : [   ]   **25X1**

SUBJECT   : NPIC Target Recognition vs. Ground Resolution Experiment

    1. Following are some unsolicited comments concerning the first phase of testing concerning the subject experiment.

    2. The test covered certain characteristics or image components pertaining to aircraft. The test results will definitely be influenced by the amount of knowledge that each individual person has on the subject.

        One question asks for identification of "inflight refuel capabilities". If this very detailed feature has never been pointed out to an individual, who is not an aircraft specialist, he undoubtedly would not recognize it even if he saw such a feature close-up.

        Another question asks the person to place the aircraft observed in given classes. One class mentioned is a "Fighter-Bomber". What is a fighter-bomber? Almost all of our fighters have the capability to carry bombs; however, you can not determine this from the aerial photo.

        The "number of engines" that the aircraft has is another question. In some cases you cannot see detail enough to determine this. However, from the stains on the hardstand it can be determined that the aircraft does have one or two engines. This means of identification is actually a convergence of evidence and does not pertain to a feature or component as seen on the aircraft.

        Other questions on the "Aircraft Requirement Sheet" are similar and will reflect the degree of knowledge the testee has on aircraft or the amount of convergenance of evidence the analyst brings to bear on the question.

    3. The four pages of wing and horizontal tail surfaces were traced from keys on aircraft. The tracings were crudely done and it was very difficult to tell whether the wing tips were rounded or blunt. Some outlines are almost identical in shape and proportions but drawn at different sizes. The question is, which one to put on the answer sheet.

                                                    Declass Review by NGA.
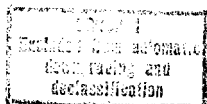
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4. In taking the test each analyst looks at eight duplicate positives, all at the same level of resolution. This does not test the ability of the same individual across all levels of resolution which would provide more accurate test results. It appears that more reliable test results would be obtained if each analyst taking the test were to start with the photo with the lowest level of resolution and work through to the highest level of resolution. Then the various components and features would appear at various levels of resolution for each individual. This would also assist in determing the analysts level of knowledge on the subject and when averaged with all test results, at each resolution level, would provide a more accurate average.

5. There should be more explaination at the beginning of the test as to what is wanted. Is it pristine photo interpretation, completely devoid of all intelligence that the analyst may have on the subject, or should a degree of prior knowledge influence the interpretation? This aspect of the test was not covered adequately.

6. In summary, it is our opinion that the results of the experiment could have been improved by:

1. Providing more complete instructions to the testees as to what they could read into the images from their own experiences.
2. Provide questions which do not require such a degree of specialized knowledge of the subject being tested.
3. Have testees use photography of the same area through all levels of resolution.
4. Have keys to recognition features prepared in a better form.

The need for information which this experiment will produce can easily be seen. We are looking forward to contributing to the continuing program and will be extremely interested in the end results.
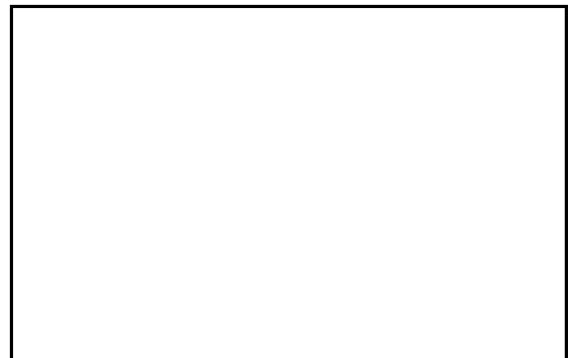
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INSTRUCTIONS

Administered 19 - 23 Oct.

To 60 P.I.s (½ DIA - ½ CIA)

IN Groups of 8.

You have been asked to participate in a study of the relation

between PI target recognition performance and ground resolution.

Your task in the study will be similar in many ways to the tasks

you regularly perform in your day-to-day work. You will be asked

to identify various features of several different types of aircraft.

In some cases, they may be easy to identify; in others they may be

very difficult, if not impossible, to identify.

For the sake of experimental control, please do not discuss

the photographs or your task with other PIs. A report of the results

of the study will be made available to you when it is completed.

You will be given the following materials:

1. Eight $9\frac{1}{2}$ x 9½ Positive Transparencies.
   Each transparency is identified on the top border by
   a three-digit frame number and one or two letters. Each
   transparency is covered with a transparent overlay and
   on top of that a matte overlay.

   The transparent overlays are divided into numbered
   areas containing the aircraft you are to examine. You
   are to use the matte overlays to circle the specific
   aircraft you examine in each area.

2. Requirements Sheets. These sheets contain a list
   of categories indicating the kind of information we want about
   each type of aircraft you discover.

3. Viewing Equipment. A simple light table is provided.
   Tube magnifiers will be sufficient for studying the photographs.
   However, you may use a microscope if you wish.

The procedure is as follows:

    a. You will examine a total of eight photographs. Place the first one given to you on the light table, and write your name (or identification number) on the matte overlay. (You do not have to give us your name if you don't wish to; you may use one of the numbers available on slips of paper to identify your work.)

    b. Look at the chart on the wall to determine the areas to be examined.

    c. Take a requirements sheet and write in your name (or identification number), the frame number, and the area number you are about to examine. You can examine the different areas in any order you wish.

    d. Lift the matte overlay and begin fulfilling the requirements.

    e. Use the matte overlay to circle each target you report. Designate the circles with letters of the alphabet to indicate the different types of aircraft. Use only one requirements sheet and letter designator per target type. As an example, suppose Area 1 of the frame 021 W contains two types of aircraft. Fill out a requirements sheet for one type first, circle all of the aircraft of that type, and place an A next to each of the circles. Also place an A opposite the phrase "Letter Designation" on the requirements sheet. Then, fill out a requirements sheet for the second type of aircraft. Circle each of them on the matte overlay, place a B beside each of these circles, and also opposite "Letter Designation" on the requirements sheet. In going from one area or one frame to the next, you do not have to use the same letter to designate a specific aircraft type. Please use a soft pencil to write on the matte overlay and don't press down hard.

If you examine the requirements sheet you will see a list of descriptive categories. The purpose of this section of the instructions is to explain what those categories mean and to provide you with a simple code -- letters and numbers -- to use in giving your responses.

a. <u>Letter Designation</u>. Write in the letter you used on the matte overlay to locate the aircraft type you are about to describe. Use only one requirements sheet per aircraft type, if there is more than one <u>type</u> in the prescribed area.

b. <u>Class</u>. This category refers to the following classes of aircraft:

B - Bomber

FB - Fighter-bomber

F - Fighter

T - Transport, personnel or cargo

L - Liaison or private plane

H - Helicopter

Use only the letters to indicate your response. Include attack and attack-bomber aircraft with the FB class. If you identify an aircraft as L(liaison), the only other requirements are to identify the <u>number of engines</u> and the <u>wing form</u>. For H(helicopters) just identify the <u>number of rotors</u> and the <u>number of blades on the main rotor</u>.

c. <u>Propulsion</u>. This category refers to the following types of propulsion:

P - Propeller

J - Jet

TP - Turbo-prop

d. <u>Number of engines</u>. Self-explanatory.

e. <u>Location of engine(s)</u>:

W - Wing

F - Fuselage

f. <u>Wing Form</u>. Which of the shapes shown on the following pages is the wing most similar to? Write in the letter-number designation.

g. Position of ____. Describe the position of the wing on the fuselage with the letter H for High, M for Middle, or L for Low.

h. Tail Form. Which of the shapes shown on the following pages is the horizontal stabilizer most similar to? Write in the letter-number designation.

i. Landing Gear Configuration. Tricycle, bicycle, tandem, etc. Write in name of type.

j. Cockpit Configuration.

Number of Seats: If there is only one seat, write in the number "1". If there is more than one seat write in the number "2".

Arrangement of Seats: Tandem or side by side. Write in response.

k. Weapons or Weapon Racks. Describe any weapons or weapon racks that you can see on the aircraft.

l. Antenna(s). Locate and describe any antennas that you can see on the aircraft.

m. Radome(s). Locate and describe any radomes that you can see on the aircraft.

n. Inflight refuel capacity. Describe any features about the aircraft that would lead you to conclude that it has an inflight refueling capacity.

o. Number of Rotors. Self explanatory.

p. Number of Blades on Main Rotor. Self explanatory.

Take as much time as you wish. We are interested in how much you can recognize in the different photographs, not how rapidly you can work. In some cases, the requirement may be very difficult to fulfill; in others, it may be very easy. In either case, do as good a job as you can.

Again, for the sake of objectivity and experimental control, please do not talk to one another about the photographs or the targets.

Please don't hesitate to ask questions regarding the procedure. Do you have any questions now?
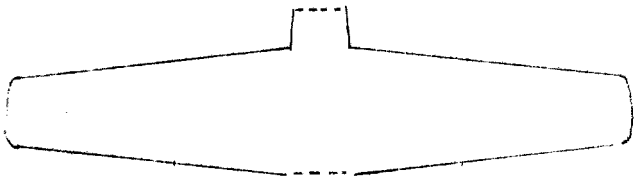
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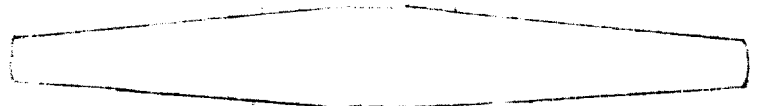
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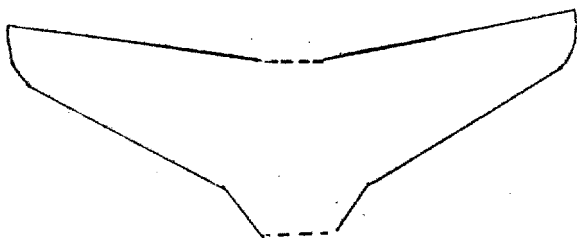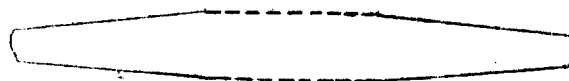WF-3
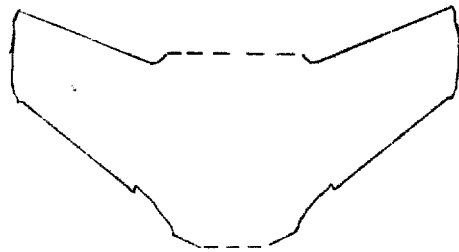
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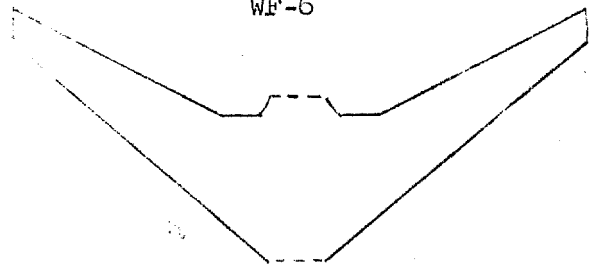
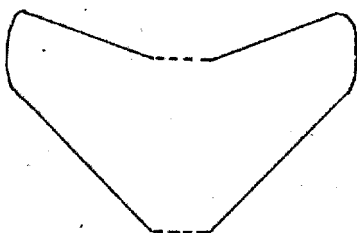WF-8
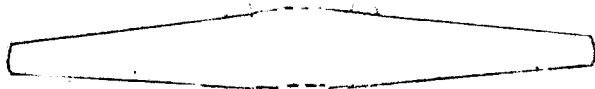
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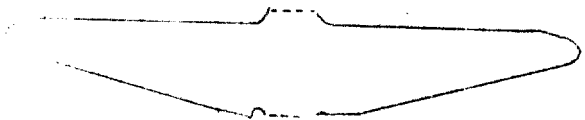
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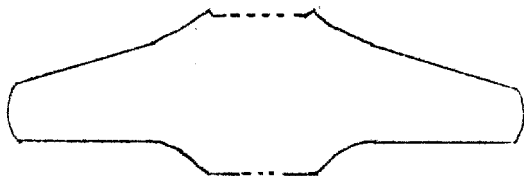
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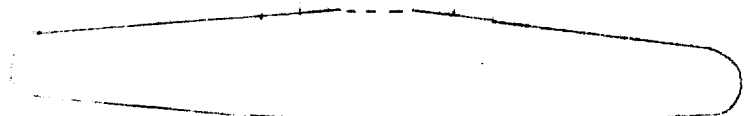
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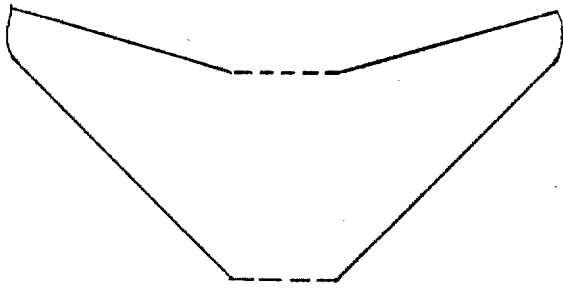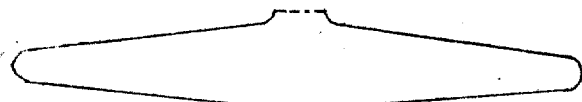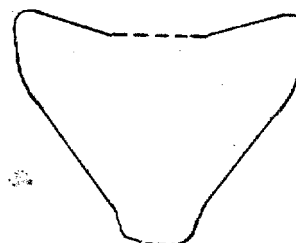
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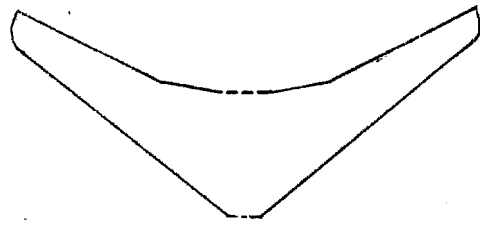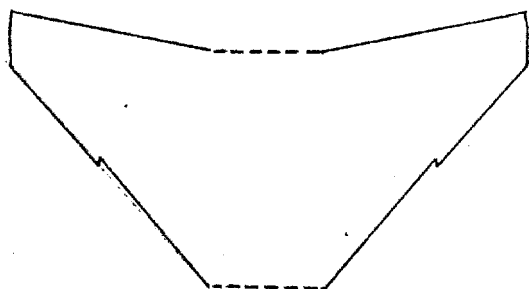
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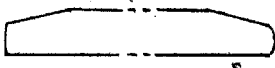
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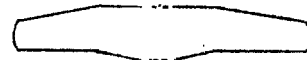
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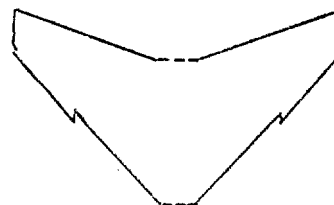
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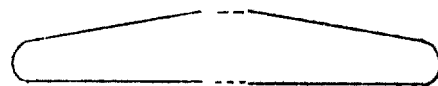
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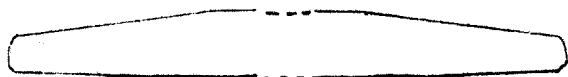
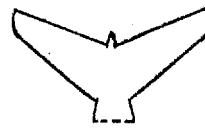WF-19

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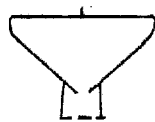WF-21

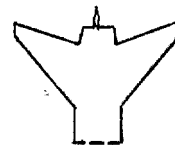WF-22

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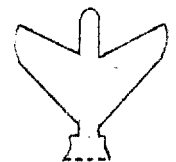TF-14 13

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